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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,682	01/27/2006	Dennis Dempsey	AD-336J	4642

7590 10/30/2006

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EXAMINER	
WILLIAMS, HOWARD L	
ART UNIT	PAPER NUMBER
2819	

DATE MAILED: 10/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/528,682	DEMPSEY ET AL.	
	Examiner	Art Unit	
	Howard L. Williams	2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-37 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) 1-37 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 20050321.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 34 and 36 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 34 recites a computer program comprising computer instruction to implement the method of claims 23, 31, 32, or 33. The claim is seen as non-statutory because it does not recite the requisite storage on a computer-readable medium that would otherwise make the claim statutory. As such it is computer program per se and would cover a program written on paper. Claim 36 recites the program on a carrier signal and fails to provide a process, machine or manufacture. For further explanation applicants' attention is directed to the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility (signed 26Oct2005) published in the Official Gazette 1300 OG 142 and available from the uspto website at http://www.uspto.gov/web/offices/pac/dapp/ogsheet.html.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 7-10, 12, 17, 22-31, and 33 are rejected under 35 U.S.C. 102(b) as anticipated by Brenardi et al. (US 4829236 A). Brenardi et al. discloses a digital compensation system that includes a DAC(14; fig. 1), storage (40, 42, 44, 46; fig. 2) for storing the coefficients corresponding to DAC errors and the DAC calibration unit (16; fig. 1) including the multiply/accumulator unit (MAC) (58; fig. 2) that serves as the anti-function processor and anti-function coefficient generator. Brenardi et al. includes an ADC to measure the performance of the DAC and obtain the values used in determining the coefficients used in the correction (flow chart penultimate box ; fig. 3A).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3-6, 13-16, 18-20 and 34-37 are rejected under 35 U.S.C. 103(a) as unpatentable over Brenardi et al. (US 4829236 A). Brenardi et al. discloses a digital calibration for a DAC. Brenardi discloses connection of the DAC to a calibrated ADC to obtain the result and use the values thus obtained to determine digital compensation coefficients. Various multiplexers are illustrated in block form for the feedback path but a separate switching device to connect the claimed anti-function processor or the anti-function coefficient generator --if these actually exist as separate elements in the invention-- to the DAC is not illustrated. Brenardi clearly provides operative connections to measure the DAC result in order to determine calibration coefficients and supply these digital coefficients to the DAC input in a compensation mode. The recited inclusion of separate switching devices, if they truly exist, would have been obvious over Brenardi because one of skill in the art would recognize the need for operational connection for the circuit to achieve its basic function. Repetition of calibration cycles is addressed in col. 3, lines 60-69.

Claim 11 is rejected under 35 U.S.C. 103(a) as unpatentable over Brenardi et al. (US 4829236 A) in view of Sloane (US 4419656 A). Brenardi et al. discloses a linear function, the classic slope-intercept function, as the basis function to calculate the DAC correction coefficients. Brenardi does not disclose using orthogonal basis functions. Sloane discloses use of orthogonal Walsh functions (well suited for digital application; col. 3, line 59) as providing a simultaneous examination of converter performance parameters by using the orthogonal Walsh functions. These parameters can then be used in DAC calibration (col. 8, line 20). It would have been obvious from the teachings of Sloane to use orthogonal basis functions in Brenardi et al. to obtain a rapid

determination of converter characteristics and minimal disruption of normal conversion cycle.

Claims 21 and 32 are rejected under 35 U.S.C. 103(a) as unpatentable over Brenardi et al. (US 4829236 A) in view of Sooch et al. (US 5818370 A). Brenardi discloses DAC calibration primarily but does include a calibrated ADC (col. 3, line 40). Sooch discloses a codec with self-calibrating ADC and DAC where both converter outputs appear usable by external components in their own right. It would have been obvious from the teaching of Sooch to provide an external ADC result connection because it would enable dual use of the circuit.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kutsuno et al. (US 6351228 B1) disclose digital calibration for ADCs and DACs. Fowers (US 6191715 B1) discloses a DAC digital calibration system. Henrion (US 5594612 A) discloses a DAC digital calibration using various curve fitting polynomials with repeated looping of the calibration. Komara et al. (US 6463093 B1) appears to correspond to WIPO document cited in the IDS filed 21 March 2005.

Any inquiry concerning this communication should be directed to Howard L. Williams at telephone number 571.272.1815. The Patent and Trademark Office central facsimile number for application specific correspondence intended for entry is 571-273-8300.

10/25/06
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Howard L. Williams
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Art Unit 2819